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10/686,648	10/17/2003	Tadaaki Suda	P23966	9807

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GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER

GOLUB, MARCIA A

ART UNIT PAPER NUMBER

2828

DATE MAILED: 09/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/686,648

Applicant(s)

SUDA, TADAAKI

Examiner

Marcia A. Golub

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of species disclosed in Fig 1 (claims 8 and 16) in the reply filed on 8/14/06 is acknowledged. The traversal is on the ground(s) that the search of the invention would not present a serious burden. This is not found persuasive because searching three different embodiments presents serious burden to the examiner.

The requirement is still deemed proper and is therefore made FINAL.

Response to Arguments

Applicant's arguments filed 5/26/06 have been fully considered but they are not persuasive.

Regarding applicant's argument on page 10 that the reference does not disclose "a laser power control signal provided from an external device". The applicant submit that the device that provides the signal is not external and points to 4/34-38 of Araki. The examiner points out that such quote is taken out of context, while the reference reads that "the reference voltage generating circuit 140 is contained within the reference voltage generator 14", Fig 3 clearly shows an external input labeled as "Data Input" provided to the reference voltage generator 14. The examiner relies on generator 14 not the circuit inside in 140 in making the rejection. As such there is clearly provided an external input to the device. The applicant also asserts that "a clock signal not a laser power control signal required by the claim". The examiner points out that the clock signal is being used by the reference voltage generating circuit 140 to produce a reference voltage that is used in further circuits to produce the current used to drive the laser. Therefore the clock signal is being used to produce the laser power control signal.

With respect to applicant's argument on page 11 that the device disclosed in the reference outputs "an abnormal signal when the laser beam intensity exceeds the intensity corresponding to the reference voltage" while the applicant's invention "prevents the laser from operating when the laser power control signal is different than a predetermined signal". The applicant states that a "predetermined signal" is not a "reference voltage" recited in the reference. However, the claim provides no guidelines

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by which to ascertain what the predetermined signal is and how it can be determined, as such the reference voltage is a predetermined signal that can be used to determine the abnormality condition.

Regarding the applicant's argument on page 12 that claims 11 and 19 recite a detector that is not disclosed by the reference. The examiner points out that claim 16 defines said detector to be the abnormality condition signal generator as recited in claim 1. Abnormality condition detector was already rejected by the cited references and since it is the same detector as claimed in claims 11 and 19, the limitations set forth by these claims are met.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, 11, and 13 are rejected under 35 U.S.C. 103(a) as being by unpatentable over Yoshikawa et al. (US pat. 5,163,063) in view of Arika (US pat. 5,418,806).

With respect to claim 1, Yoshikawa discloses a semiconductor laser that emits a laser beam (see col. 3, lines 48-50 and fig. 1); a laser power detector that detects laser beam power of said semiconductor laser (1b); a laser driving circuit (see col. 3, line 46-47), which is being driving by a driver [103], compares the reference voltage generated by said reference voltage generator and the laser beam power detected by said laser power detector to control a driving current supplied to said semiconductor laser for emitting the laser beam (see col. 3, lines 57-64 and col. 4, lines 12-17); an abnormal condition detector (circuit 104) that detects the laser power control signal received by said reference voltage generator and stops said laser driver from operating when the detected laser power control signal differs from a predetermined signal (see col. 4, lines 4-11). Yoshikawa also discloses a reference voltage (col. 4, lines 66-67). However,

Yoshikawa fails to specifically disclose a reference voltage generator that generates reference voltage for controlling the laser beam power of said semiconductor laser in accordance with a laser power control signal provided from an external device. A reference voltage generator that generates reference voltage for controlling the laser beam power of said semiconductor laser in accordance with a laser power control signal provided from an external device is well taught by Arika (fig. 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the references above to generate voltage to the device, as indicated by Arika (abstract).

With respect to claims 3 and 13, Yoshikawa discloses wherein said abnormal condition detector outputs a laser driver disable signal to said laser driver to stop operation thereof when said input terminal remains at the first voltage level and the laser power control signal inputted thereto has a second voltage level different from the first voltage level (see col. 4, lines 4-11). However, Yoshikawa fails to specifically disclose an input terminal of said reference voltage generator is kept at a first voltage level when no laser power control signal is provided thereto. An input terminal of said reference voltage generator is kept at a first voltage level when no laser power control signal is provided thereto is well taught by Arika (col. 1, lines 32-36 and fig. 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the references above to generate voltage to the device, as indicated by Arika (abstract).

With respect to claim 4, Yoshikawa and Arika disclose everything as claimed above. In addition, Yoshikawa discloses wherein the first voltage level is a high voltage and the second voltage level is a low voltage lower than the first voltage level (see col. 5, lines 26-27).

With respect to claim 11, Yoshikawa and Arika disclose everything as claimed above. In addition, Yoshikawa discloses a laser source that emits a laser beam to be scanned on an object (see col. 2, line 16); a connector having at least one input terminal at connectable to an external device for receiving a control signal (see fig. 1); a laser source controller (102) that controls power of the laser beam emitted from said laser source in accordance with the control signal received through said input terminal (see

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fig. 1 and see col. 3, lines 61-64); and a detector (104) that examines the connection between said input terminal and the external device and disables said laser source from emitting the laser beam when a poor connection between said Input terminal and the external device is detected (see col. 4, lines 4-11).

Claims 2, 12, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al. (US pat. 5,163,063) in view of Arika (US pat. 5,418,806), and further in view of Takesue (US pub. 2005/0093969).

With respect to claims 2 and 12, Yoshikawa and Arika disclose everything as claimed above, including, laser scanning wherein said the driving current of said semiconductor laser is adjust to correspond to the laser power control signal (see Yoshikawa, col. 6, lines 14-19). Yoshikawa and Arika fail to specifically disclose a manually operable adjuster. A manually operable adjuster is well taught by Takesue (see paragraph 0177). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the references above to correct a phase error of the light, as indicated by Takesue (see paragraph 0175).

With respect to claim 19, Yoshikawa and Arika everything claimed above, including, a laser source that emits a laser beam to be scanned on an object (see Yoshikawa, col. 2, line 16); an input terminal connectable to an external device for receiving a control signal (see fig. 1); a laser source controller (102) that controls power of the laser beam emitted from laser source in accordance with the control signal received through said input terminal (see fig. 1 and see col. 3, lines 61-64); and a detector (104) that examines the connection between said input terminal and the external device and disables said laser source from emitting the laser beam when a poor connection between said Input terminal and the external device is detected (see col. 4, lines 4-11). Yoshikawa and Arika fail to specifically disclose an adjuster. An adjuster is well taught by Takesue (see paragraph 0177). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the references above to correct a phase error of the light, as indicated by Takesue (see paragraph 0175).

With respect to claim 20, Yoshikawa, Arika, and Takesue disclose everything as claimed above. In addition, Yoshikawa discloses an input terminal is kept at a first voltage level when no laser power control signal is provided thereto (see fig. 1), and wherein said abnormal condition detector outputs a laser driver disable signal to said laser driver to stop operation thereof when said input terminal remains at the first voltage level and the laser power control signal inputted thereto has a second voltage level different from the first voltage level (see col. 4, lines 4-11).

Claims 5-8, 10 and 14-16, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al. (US pat. 5,163,063) in view of Arika (US pat. 5,418,806) and further in view of Suda (US pat. 6,566,641).

With respect to claims 5 and 14, Yoshikawa and Arika disclose everything as claimed above, including, an input terminal of said reference voltage generator is kept at a first voltage level when no laser power control signal is provided thereto (see Arika, col. 1, lines 32-36 and fig. 3), and wherein said abnormal condition detector outputs a laser driver disable signal to said laser driver to stop operation thereof when said input terminal remains at the first voltage level and the laser power control signal inputted thereto has a second voltage level different from the first voltage level (see Yoshikawa, col. 4, lines 4-11). Yoshikawa and Arika fail to specifically disclose a reference voltage generator having a plurality of input terminals or connectors. A reference voltage generator having a plurality of input terminals and connectors is well taught by Suda (see col. 6, line 22 and fig. 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the references above to include devices such as a sample-and-hold circuit and a saw-tooth wave generator. These two devices will work together to maximize voltage, as indicated by Suda (see Suda, col. 6, lines 34-50).

With respect to claim 6, Yoshikawa and Arika disclose everything as claimed above without specifically disclosing the laser power control signal is a parallel digital signal. However, the laser power control signal being a parallel digital signal is well taught by Suda (see col. 2, lines 46-49). It would have been obvious to one of ordinary

skill in the art at the time the invention was made to combine the references above to be able to convert digital to analog signal, as indicated by Suda (see col. 2, lines 46-49).

With respect to claims 7 and 15, Yoshikawa, Arika, and Suda disclose everything as claim above. In addition, Yoshikawa discloses wherein said abnormal condition detector (104) includes an abnormal condition signal generator (col. 4, lines 27-28) that generates an abnormal condition signal when at least one of said input terminals remains at the first voltage level and the laser power control signal inputted thereto has the second voltage level (see col. 4, lines 4-9), and a laser driving circuit controller (102) that outputs the laser driver disable signal to said laser driver when said abnormal condition signal generator outputs the abnormal condition signal, and wherein said disable signal disables said laser source from emitting the laser beam (see col. 4, lines 9-11).

With respect to claims 10 and 18, Yoshikawa, Arika, and Suda disclose everything as claimed above. In addition, Yoshikawa discloses wherein said laser driving circuit controller is a flip flop that changes a state of an output thereof to generate the laser driver disable signal (see col. 5, lines 44-45).

With respect to claims 8 and 16, Yoshikawa, Arika, and Suda disclose everything as claim above. In addition, Arika discloses a reference voltage generator and Yoshikawa discloses wherein said abnormal condition signal generator includes an AND gate having inputs whose number is not less than a number of said input terminals of said reference voltage generator, and wherein said inputs of said AND gate is connected with respective ones of said input terminals (see Yoshikawa, col. 5, lines 33-40 and fig. 2).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Info

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcia A. Golub whose telephone number is 571-272-8602. The examiner can normally be reached on M-F 9-6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marcia A. Golub
Assistant Examiner
Art Unit 2828


Minsun Harvey
Supervisor
Art Unit 2828

MAG